<Date>

Dispersion Modeling Lead Worker
Iowa Department of Natural Resources
7900 Hickman Road
Suite 1
Windsor Heights, IA 50324

RE: PSD Dispersion Modeling Protocol for <facility name/location/description>

Dear Lead Worker:

<Introduction, project description (including which pollutants are subject to pre-construction review)>

PRE-CONSTRUCTION MONITORING

< Discuss whether pre-construction monitoring will be required for this project (based on the monitoring *de minimis* levels in Table 1 of the "Air Dispersion Modeling Guidelines For PSD Projects"). If pre-construction monitoring is required, state whether the facility will be conducting their own monitoring or if data from an existing monitor will be used. Should the applicant elect to use existing ambient monitoring data, the Ambient Air Monitoring staff must be contacted regarding the use and representativeness of the existing monitoring data. The decision to accept or reject existing ambient monitoring data to meet this requirement is made by the monitoring and permitting staff. Note that a net emissions increase of greater than 100 tpy of VOC emissions triggers the requirement to conduct pre-construction ozone monitoring.>

MODELING METHODOLOGY

DISPERSION MODEL

<Specify the model used, the version of model executable, etc>

SOURCE CHARACTERIZATION

< Provide description of sources included in the analysis (including ancillary sources), scenarios to be modeled (including varying operational load analyses, etc.), any operating restrictions that will be incorporated in the modeling analyses, specifically state what methods will be used to model indoor venting units and all fugitive sources including haul roads, etc.>

RECEPTOR GRIDS

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<Description of receptors included in analysis. At a minimum, receptors should include a Cartesian grid with receptors spaced as follows:

- 50 m along the facility fence line
- 50 m extending from the fence line to 0.5 km
- 100 m extending from 0.5 km to 1.5 km
- 250 m extending from 1.5 km to 3 km
- 500 m extending from 3 km to 5 km

Additional receptors, spaced at 1000 meters, may be necessary beyond 5 killometers from the source. Concentrations should clearly be decreasing near the edge of the receptor grid. If not, additional receptors should be added; fine grids (50-meter) should be placed over the area of maximum concentration to ensure that the true maximum concentration is identified.>

TERRAIN ELEVATIONS

<Discussion of terrain elevations such as:

- Basis for imported elevations (National Elevation Dataset (NED), other data, source, etc.)
- Discussion of AERMAP processing>

BUILDING DOWNWASH

<Discussion of buildings and structures included in analysis, method for determining downwash parameters, version of executable used, etc.>

METEOROLOGICAL DATA

<Specify meteorological data used in analysis, profile base elevation, etc.>

MODELING ANALYSIS

<Pollutants subject to PSD should be modeled and the results compared to the significant monitoring concentrations and significant impact levels (SILs). These levels are listed in the "Air Dispersion Modeling Guidelines For PSD Projects" in Tables 1 and 2, respectively. >

<If any of the modeled concentrations resulting from the proposed project are above the SILs then the significant impact area should be determined and a full impact analysis conducted. The significant impact area is a circular area with a radius extending from the source to the most distant point where the predicted concentrations equal or exceed the SILs, or a receptor distance of 50 kilometers, whichever is less. See guidance provided in "Air Dispersion Modeling Guidelines for PSD Projects" for determinatioin of the significant impact area for 1-hour NO2.

The full impact analysis is required to compare the modeled concentrations to the National Ambient Air Quality Standards (NAAQS) and the Class II PSD increments for the pollutants and averaging periods for which the SILs are exceeded. The NAAQS and Class II PSD increments are listed in the "Air Dispersion Modeling Guidelines for PSD Projects" Tables 3 and 5, respectively.>

SOURCE INVENTORIES

<Once the extent of the significant impact area is determined, the DNR should be contacted. The DNR will provide a source inventory of Iowa facilities that should be considered for the full impact analysis.

This source inventory should be used to compile a modeling inventory with information available on the website and in the Air Quality Bureau's Records Section, which is open Monday through Friday from 8:00 AM to 4:30 PM. Contact Record's Section at (515) 242-5100 to obtain information on records procedures and photocopying costs. The DNR will provide input files for facilities and pollutants that have been previously modeled, as available. If the impact or screening area extends into surrounding states, the appropriate agency should be contacted to obtain emissions inventory information for facilities in those states.>

BACKGROUND VALUES

<Appropriate background values must be added to modeled concentrations when a NAAQS analysis is being conducted. Current statewide default background values can be obtained from Table 4 and Figure 1 of the "Air Dispersion Modeling Guidelines For PSD Projects".

Applicants may use local monitoring data, if available, instead of the statewide default background values, to determine more refined estimates of background values. Acceptable methods for determining refined estimates of background values from local monitoring data include 40 CFR Part 51, Appendix W or background concentrations based on monitoring data from locations with similar land use. If refined values are used, provide a detailed explanation of how the background value(s) were derived, the data considered, and the resulting values used for department review and approval.>

ADDITIONAL IMPACTS ANALYSIS

<An additional impacts analysis must be conducted for all PSD projects. The additional impact analysis must address the following topics.>

GROWTH

<Discuss the impacts associated with growth resulting from the proposed project.>

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<u>SOILS AND VEGETATION</u>

<The impacts on soils and vegetation of the proposed project must be considered. Discuss how those impacts will be quantified. Simply stating that the predicted impacts are below the applicable SILs or NAAQS is not adequate.>

<u>VISIBILITY</u>

<A Class II area visibility analysis must be conducted for sensitive areas as identified by the DNR. The DNR will determine the sensitive areas once the SIAs for the projects are established. State how the visibility analysis will be conducted (e.g. VISCREEN, etc.)>

CLASS I AREA IMPACTS ANALYSIS

<All PSD projects for facilities that propose to locate within 100 kilometers of a Class I area and PSD projects for facilities proposing to locate at a distance greater than 100 kilometers from a Class I area, that are large enough that they may have an impact on a Class I area, must conduct a Class I area impact analysis. There are currently no Class I areas located within the state of Iowa or within 100 kilometers of Iowa's borders. During review of the submitted modeling protocol, the department will determine if the PSD project is large enough to require a Class I area impact analysis.>

If you have any questions concerning this modeling protocol, or if you need additional information, please contact <name> at <phone number> or <email address>.

Sincerely,

<COMPANY>

<Name>
<Title>

<Attachments?>

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If you have any questions in regard to developing a modeling protocol, or if you need additional information, please contact a member of the modeling group at 242-5100.